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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,600	04/15/2004	Anbo Wang	3811-010-27	6402

7590 03/29/2006

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EXAMINER

LYONS, MICHAEL A

ART UNIT PAPER NUMBER

2877

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/824,600

Applicant(s)

WANG ET AL.

Examiner

Michael A. Lyons

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 August 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>083004 6/1/05</u>   | 6) <input type="checkbox"/> Other: _____                                    |

## **DETAILED ACTION**

### ***Claim Objections***

Claims 22-27 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In their current form, claims 22-27 are all system claims that are dependent upon claim 14. Claim 14, however, is a method claim dependent on claim 1, which is also a method claim. It appears that claims 22-27 would more properly depend on claim 15, which is a system claim.

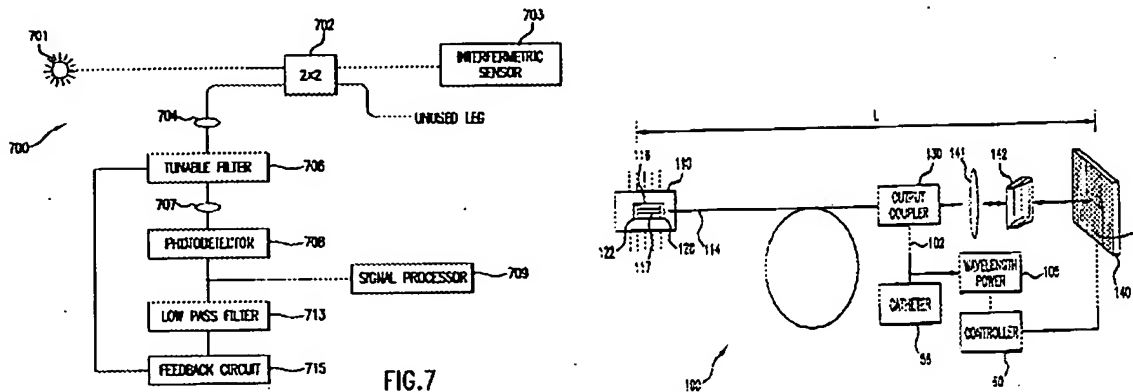
### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over May (7,016,047) in view of Korn (6,980,573).



Regarding claims 1, 8, 15, and 22, May (Fig. 7) discloses a method and system for controlling a quiescent point of a linear interferometric sensor system comprising a light source 701 that illuminates an interferometric sensor 703, a coupler 702 that connects the light source and the sensor, a tunable optical filter 706 that is coupled to the light source and the sensor by the coupler and filters light reflected by the interferometric sensor, the filter having a pass band, the pass band having a center frequency, a detector 708 that converts the filtered light into an electrical signal, and a feedback circuit 715 that generates a feedback signal based on a steady state component of the electrical signal and a set point, with the feedback signal used to control the adjustable filter such that a quiescent point of the sensor system is maintained at a desired location corresponding to the set point. (See also claims 1 and 12 of May).

May, however, fails to disclose the tunable filter being an adjustable grating.

Korn (Fig. 2) discloses an optical system where a tunable, adjustable grating 140 as a tunable filter. Turning the angle of the grating with respect to the incoming light tunes the pass

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band of the grating (Col. 5, lines 54-63). Since the grating is adjusted via turning, it is inherently on a motorized, rotatable stage (instant claims 8 and 22).

Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use an adjustable grating having a pass band that has a center frequency as the tunable optical filter of May as per Korn, the motivation being that Korn discloses that the adjustable grating and tunable optical filters are functionally equivalent (see Col. 5, lines 47-50).

As for claims 2 and 16, May discloses that the interferometric sensor is a Fabry-Perot cavity (claims 2 and 13).

As for claims 3 and 17, May discloses that the interferometric sensor is a Fizeau cavity (claims 3 and 14).

As for claims 4 and 18, May discloses that the interferometric sensor is a fiber optic sensor (claims 4 and 15).

As for claims 5 and 19, May discloses that the interferometric sensor is a Michelson interferometer (claims 5 and 16).

As for claims 6 and 20, May discloses that the interferometric sensor is a Mach-Zehnder interferometer (claims 6 and 17).

As for claims 7 and 21, May discloses that the interferometric sensor is a Sagnac interferometer (claim 18).

As for claims 9-10, 12, 23, and 25 May discloses lens 707 that passes the light to photodetector 708 which sends an electrical signal to signal processor 709 for spectrum analysis.

As for claims 11 and 24, the combined device discloses the claimed invention except for the use of a multimode fiber. Official Notice is taken, however, as to the well known use of multimode fibers in fiber interferometry, and it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a multimode fiber to transport the light from the collimator to the photodetector of the combined device, the motivation being that a multimode fiber allows for the transport of multimode light without interference between the modes of the light while greatly reducing the amount of light lost and possible signal degradation due to external effects acting on the light as it passes through the system.

As for claims 13 and 26, May discloses low pass filter 713 (claims 8 and 20).

As for claim 14, see claim 11 of May.

As for claim 27, see claim 22 of May.

### *Conclusion*

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat. 6,707,561 to Budach et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael A. Lyons whose telephone number is 571-272-2420.

The examiner can normally be reached on Monday through Friday.

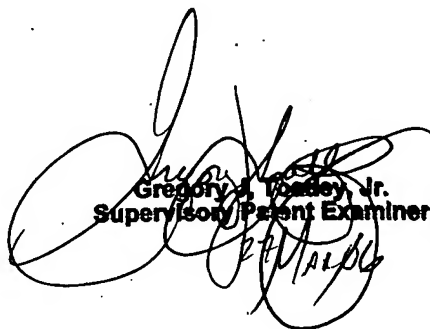
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley can be reached on 571-272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MAL

March 21, 2006



Gregory J. Wadley, Jr.  
Supervisory Patent Examiner